

Chapter Four

Replacement of Old Age Trees

Why Remove Old Trees?
Current Tree Age Distribution
Management Direction
Removal Protocol



City of Carlsbad
Community Forest Management Plan

Chapter 4 - Replacing Old Age Trees

“...it is rare for a tree in an urban area to continue to thrive past approximately 30 years of age.”



Tree removal standards ensure that hazardous or nuisance trees are removed in a prompt and safe manner. A policy of replacing removed street trees with appropriate tree species will help to keep the tree population stable, avoiding future problems that would likely develop when the wrong tree is planted in the wrong space.

Why Remove Old Trees?

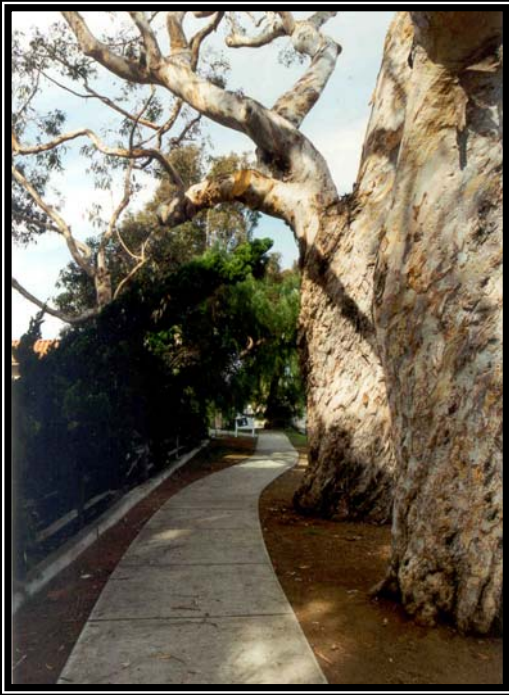
Trees in urban settings have life spans that are usually shorter than they would be in a natural or wild land setting. Urban conditions promote short life spans in trees and result in highly condensed age distribution, i.e., a limited range of tree ages results in many trees from 1 to 30 years old instead of between 1 to 100+ years old (IPW 1991). Age diversity policy for Carlsbad's community forest should reflect the fact that it is rare for a tree in an urban area to continue to thrive past approximately

30 years of age. In fact, in some urban settings trees do not typically live beyond 10 years of age. Trees in urban settings have very different growing environments than those in natural settings. Urban trees must adapt to harsh, engineered environments, hotter, dryer, or colder wetter weather, more and different light intensity, lack of shading, increased wind, soil compaction, exotic plants, turf grass, poor and limited soils, root damage, and pollution. Because of these stress-inducing elements and the possibility of personal or property damage should trees fail, urban trees must be removed as they decline and are lost, or become unsafe. Living trees may also require removal if they conflict excessively with urban infrastructure and create unsafe conditions.

The likelihood that a tree will need to be removed for one reason or another increases as the tree grows older and larger (ISA 2001). If areas are planted to a single species at one time, a large percentage of the trees will need to be removed over a short time period when they reach the end of their useful life. This results in a rapid reduction in canopy cover, and the loss of many of the benefits provided by the urban forest. This undesirable situation is less likely to occur if the urban forest is composed of a variety of tree age classes and species (ISA 2001).



Tree maturity is a critical, but often-overlooked component of the community forest. The tendency of urban forest managers is to encourage the oldest urban forest possible, as it has already been suggested that mature trees provide the most community benefits. However, mature trees can also contribute significant problems. It is, therefore, important to maximize tree health through horticultural practices and maintenance so that the mature trees, preferably representing a relatively small percentage of the tree population, have extended lives.



Trees require the highest frequency of maintenance when they are very young and very old. Very young trees require multiple pruning visits for training purposes along with supplemental irrigation and fertilization. Very old trees require corrective pruning, trimming, and other treatments that help prevent or reduce potential hazard. This maintenance on old trees is designed to preserve a strong structure but carries a high cost due to the size of the tree and the associated increased time requirements for providing maintenance. In addition, tree removals that eventually become necessary, are often the most costly maintenance practice in urban forestry budgets (Irvine Public Works 1991). Consequently, encouraging an over-mature urban forest will eventually increase the budget required for tree maintenance to prevent or reduce hazard. It may also create an age distribution where the majority of trees are very old. Similar to single-species forests that are more susceptible to wide-

spread infestation and tree mortality, mono-aged forests can result in large numbers of trees requiring removal over a relatively short period of time. The number of mature trees could then decline dramatically creating an extremely young urban forest and the potential to begin the cycle over again. Maintaining a diverse forest in terms of tree ages is as important as diversity in species. Attention to urban forest tree maturity results in true forest stability, preserves significant trees and sustainability, and provides for consistent maintenance funding levels.

Tree Age Distribution

Maturity is typically estimated based on tree size. Analysis of the state of the urban forest regarding this issue focuses on trunk diameter. Twelve inches trunk diameter generally represents a vigorous, mature tree that is providing more benefit than cost (IPW 1991). Once a tree has reached a point where it is no longer contributing to the community, it should be removed. The city uses very specific guidelines to evaluate trees that are thought to be approaching this point. These guidelines focus on promoting the health and safety of the urban forest. Issues such as negative impacts on hardscape infrastructure including sidewalks, sewer systems and roads, are considered for tree removal. Also seriously considered is tree age, health, condition, typical species lifespan, size, safety, and signs of structural problems.

As important as it is to maintain species diversity in the community forest, it is also important

to maintain size (i.e., age) diversity. Trees of various ages respond to stress and attack by pests and insects in different ways. Maintaining age/size diversity helps guard against large-scale loss of trees by limiting the number of trees in each age/size category. Establishing goals so that trees fall roughly within various diameter classes according to the categories in Table 3 (page 19).

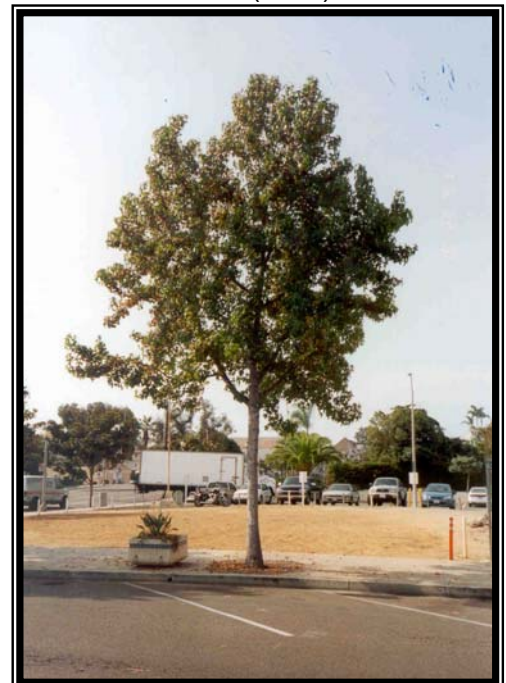
Table 3. Recommended and Actual Carlsbad Tree Age Distribution.

Trunk Diameter Class (inches)	Recommended Percentage of population	Actual(1993) Percentage of Population
0-3	10%	18%
3-6	20%	20%
6-12	30%	37%
12-18	20%	13%
18-24	10%	8%
24-30	5%	2%
>30	5%	2%
Total	100	100%

Management Direction

As depicted in Table 3, The City of Carlsbad includes high numbers of smaller sized trees, beyond the ideal percentage of population for both the 0-3 and 6-12 inch classes (1993). The City was below recommended levels for larger size trees.

The four largest trunk diameter tree categories are a combined fifteen-percent below recommended levels. More larger/older trees allowed to grow into these size classes would be encouraged such that appropriate recommended levels are maintained. One limiting factor for meeting distribution goals may be the availability, or lack thereof, of large tree planting spaces. This can be determined as part of a comprehensive tree inventory, as recommended in this CFMP. It is not suggested that large tree species are planted in spaces that are not appropriate. It is better to be below recommended levels than to create tree problems from planting the wrong tree in the wrong place. The smaller diameter trees, those in the 0- to 12-inch trunk diameter classes, account for fifteen percent higher than recommended levels. Further, this percentage



is expected to increase with planting of the more than 3,000 vacant tree spaces.

Reevaluation of the urban forest as part of an updated tree inventory will provide more insight into the size/age distribution of the City's trees. Once this is complete, management actions can focus on developing an urban forest that more closely matches the recommended size/age distribution which will help ensure sustainability of the Community Forest.

Tree Removal Policy

The City follows a standard protocol when trees must be removed and replacement is scheduled. In summary, a letter is submitted to residents in the vicinity of trees scheduled for removal one month prior to action. The letter notifies residents that a tree will be removed and whether the tree will be replaced, and if so, what tree species has been selected for replacement planting. Residents have one month to appeal. Once the tree has been planted, there is no appeal.

The City's street tree removal and replacement appeal process is clearly defined and consists of the following:

- Residents must respond within 30 days of notification or appeal is no longer possible.
- Residents must submit an appeal form with the \$120 appeal fee.
- Hazard trees are removed immediately with no appeal process.
- Parks and Recreation Commission determines the action of an appeal.
- The species replacement will be from the new list and staff recommendation.

Old age trees are typically the large, dominant trees in the community forest that residents become emotionally attached to for many different reasons. Large trees provide many benefits and are often a link to days gone by. They do, however, become significant hazards in an urban environment and will all eventually require removal. The City follows consistent criteria for removal and replacement of its large and old trees. Every effort is made to retain these valuable resources, but not at the expense of public safety and community forest health.